CLAIMS

1. Colloidal dispersion of calcium phosphate platelets comprising at least one polymer which complexes calcium and in which the length of the platelets, L, is between 5 and 500 nm and in which the thickness of the platelets is between 0.5 and 20 nm.

2. Colloidal dispersion according to claim 1, characterized in that the length of the platelets, L, is between 5 and 300 nm, preferably between 5 and 200 nm.

3. Colloidal dispersion according to either of the preceding claims, characterized in that the thickness of the platelets is between 0.5 and 15 nm.

4. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises calcium phosphate platelets exhibiting a monetite or apatite structure.

5. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises at least one polymer which complexes calcium having anionic functional groups, preferably carboxylate, phosphate or phosphonate functional groups.

6. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises at least one polymer which complexes calcium chosen from polymers with a peptide backbone of

polyaspartic acid, polyglutamic acid, polylysine or polyglycine type, or else from homopolymers and copolymers of acrylic acid or methacrylic acid, polyacrylic acid or polymethacrylic acid, or else from copolymers of the polyacrylic-polymethacrylic, polyacrylic-polyhydroxyethylacrylic or polyacrylic-polyacrylamide type, or else from natural and/or modified polysaccharide polymers, such as guar gum, carboxymethylcellulose or xanthan gum, or else from modified polysaccharide polymers having phosphate or phosphonate functional groups, or else from peptide polymers comprising phosphate functional groups.

7. Colloidal dispersion according to one of the preceding claims, characterized in that it exhibits a molar ratio R_1, moles of anionic functional groups present in the polymer to moles of calcium, of between 0.0001 and 0.1.

8. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises at least one polymer which complexes calcium having a molecular weight, MW, of between 1000 and 20 000 g/mol, preferably of between 1000 and 5000 g/mol.

9. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises at least one dispersing agent.

10. Colloidal dispersion according to claim

9, characterized in that it comprises at least one dispersing agent chosen from polyphosphates, in particular sodium tripolyphosphate.

11. Colloidal dispersion according to either of claims 9 and 10, characterized in that the dispersion exhibits a molar ratio R_2, moles of dispersing agent to moles of calcium, of between 0.001 and 0.5, preferably of between 0.001 and 0.1.

12. Colloidal dispersion according to one of the preceding claims, characterized in that it comprises doping elements chosen from alkaline earth metal elements, such as strontium or magnesium, rare earth metal elements, such as yttrium, or elements with an atomic number of between 57 and 71.

13. Calcium phosphate platelets obtained by drying the colloidal dispersion according to claims 1 to 12.

14. Process for preparing the dispersions according to claims 1 to 12, characterized in that it comprises the following stages:

i) preparing a solution of calcium salts, the pH of which is between 4 and 6;

ii) adding a phosphate solution to the solution obtained in stage i) over a period of time of between 30 minutes and 4 hours, so as to obtain a calcium to phosphorus molar ratio of between 1 and 2.5 and while keeping the pH

constant at a value of between 4 and 6;

iii) heat treating the dispersion obtained in stage ii) at a temperature of between 50°C and 95°C;

iv) washing the dispersion obtained in stage iii);

v) adding a dispersing agent to the dispersion obtained in stage iv);

vi) separating the colloidal dispersion obtained in stage v);

and in that it uses, in at least one of stages i) or ii), solutions comprising an ammonium ion;
and in that at least one polymer which complexes calcium is added during stage i) or ii) but before stage iii).

15. Process according to claim 14, characterized in that the calcium solution is a $CaCl_2$ or $Ca(NO_3)_2$ solution.

16. Process according to either of claims 14 and 15, characterized in that the concentration of the calcium solution is between 0.25M and 2.5M, preferably between 1.25M and 1.75M.

17. Process according to one of claims 14 to 16, characterized in that the phosphate salt solution is a solution of ammonium phosphate or of sodium phosphate, in particular of $(NH_4)_2(HPO_4)$ or $(NH_4)(H_2PO_4)$.

18. Process according to one of claims 14 to

17, characterized in that the calcium to phosphorus molar ratio is between 1.3 and 1.7 and more particularly is 1.66.

19. Process according to one of claims 14 to 18, characterized in that the temperature of the heat treatment in stage iii) is between 50°C and 95°C, preferably between 60°C and 90°C.

20. Use of the dispersions according to one of claims 1 to 12 or of the platelets according to claim 13 as food additive, reinforcing filler, thermal insulation filler, pharmaceutical excipient, polishing agent, building materials, additive for oral formulations, in particular dentifrices, or encapsulating agent.